PHIN Architecture

August 9, 2006

PHIN

- Improve the capacity of public health to use and exchange information electronically by
  - Promoting the use of standards
  - Providing technical specifications
  - Defining basic public health priorities
  - Identifying workforce competencies
  - Facilitating collaborative development
  - Developing policies for data sharing
  - Strengthening routine use and data exchange to be robust and flexible enough to accommodate an emergency

Public Health Information Network
CDC Applications and Services

Early Event Detection

BioSense, NEDSS Base System, PAM Development Platform

Outbreak Management

Outbreak Management System

Connecting Laboratory Systems

Laboratory Response Network Results Messenger, LUNA

Partner Communication and Alerting

Partner Communication and Alerting, Epi-X, HAN, CDC Website

Countermeasure and Response Administration

Countermeasure and Response Administration, VAC Man

Cross Functional Components

PHIN Directory Exchange, PHIN Messaging Service, PHIN Vocabulary Access and Distribution System

phin
PUBLIC HEALTH INFORMATION NETWORK

Public Health Information Network (PHIN)

The Public Health Information Network (PHIN) is CDC's vision for advancing fully capable and interoperable information systems in the many organizations that participate in public health. PHIN is a national initiative to implement a multi-organizational business and technical architecture for public health information systems. ... more >>

View by Topic

- Architecture
- Certification
- Component Initiatives
- Conference
- Connecting Laboratory Systems
- Countermeasure and Response Administration
- Cross-Functional Components
- Early Event Detection
- Outbreak Management
- Partner

Featured Items:

[08/01/06]
2006 PHIN Conference
Now available - PHIN conference registration form and ancillary meeting schedule ... more >>

[07/20/06]
Introduction to the Outbreak Management System
Sponsored by National Center for Public Health Informatics, Division of Alliance Management and Consultation and delivered by the OMS Deployment Team. ... more >>

[07/03/06]
PHIN 101: Outbreak Management

About PHIN

- Overview
- Contact Information
- FAQs
- Governance
- Standards Development Organizations

Architecture

Core elements to system interoperability and information exchange

- Functional Requirements
- Technical Specifications

PHIN: Component Initiatives

View by Topic

- Architecture
- Certification
- Component Initiatives
- Conference
- Connecting Laboratory Systems
- Countermeasure and Response Administration
- Cross-Functional Components
- Early Event Detection
- Outbreak Management
- Partner Communications and Alerting
- Software and

PHIN targets the support and integration of systems for disease surveillance, national health status indicators, data analysis, public health decision support, information resources and knowledge management, alerting and communications and the management of public health response. The major thrust of PHIN is to connect the many organizations and functions of public health to create a reliable, information network capable of supporting the current and emerging needs of public health. This network of capable information systems will be built from existing initiatives and software systems that are supportive of the PHIN Functional Areas. These PHIN component initiatives are considered national in scope and support better public health practice through integrated systems. Some of these component initiatives include:

- Environmental Public Health Tracking Network (EPHTN) - The ongoing collection, integration, analysis, interpretation, and dissemination of data on environmental hazards; exposures to those hazards; and related health effects. The

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PHIN: Architecture

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- Cross-Functional Components
- Early Event Detection
- Outbreak Management
- Partner Communications and Alerting
- Software and Solutions

The Public Health Information Network (PHIN) is a business and technical architecture for the nation's public health information systems. The PHIN architecture:

- Defines and documents the systems needed to support public health professionals.
- Identifies the industry standards that are necessary to make these systems work together.
- Develops the specifications necessary to make these standards do the work of public health.
- Defines integration points for systems to work together to meet the broad functional needs.
- Establishes tools and components that support standards-based systems.
- Supports the certification process necessary to establish interoperability.

PHIN Functions and Specifications

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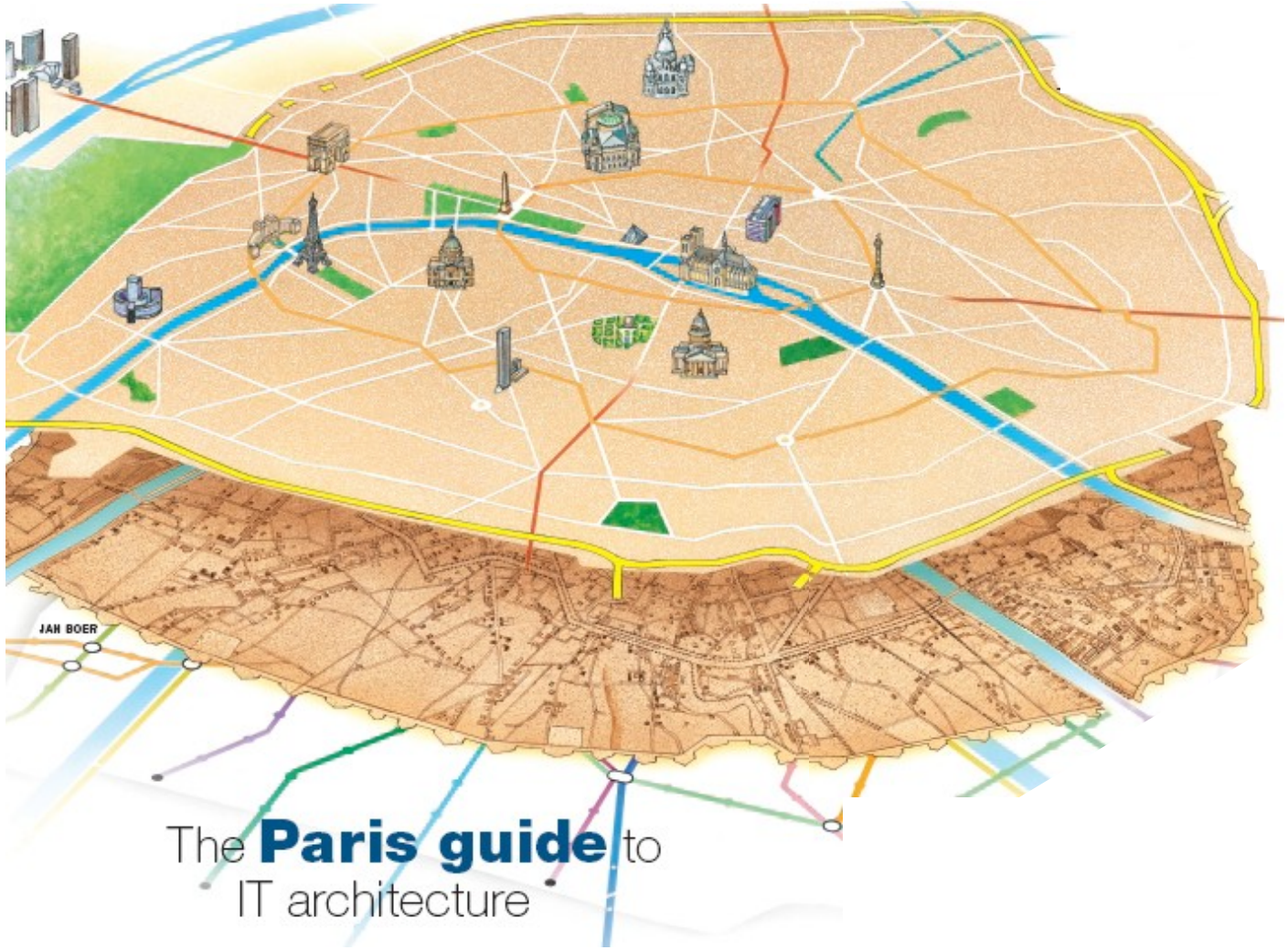
The Repository

All the documents related to the functional areas zipped up for easy download.

- Requirements (zip)
- Implementation Guides and Specifications
- Key Performance Measures
- Functional Self Assessments (zip)

Enterprise Architecture and the City Planning Analogy



"City planners try to preserve viable old assets, to replace outmoded assets, and to add new assets—all in the context of an infrastructure linking them coherently. IT developers have a good deal to learn from that approach."

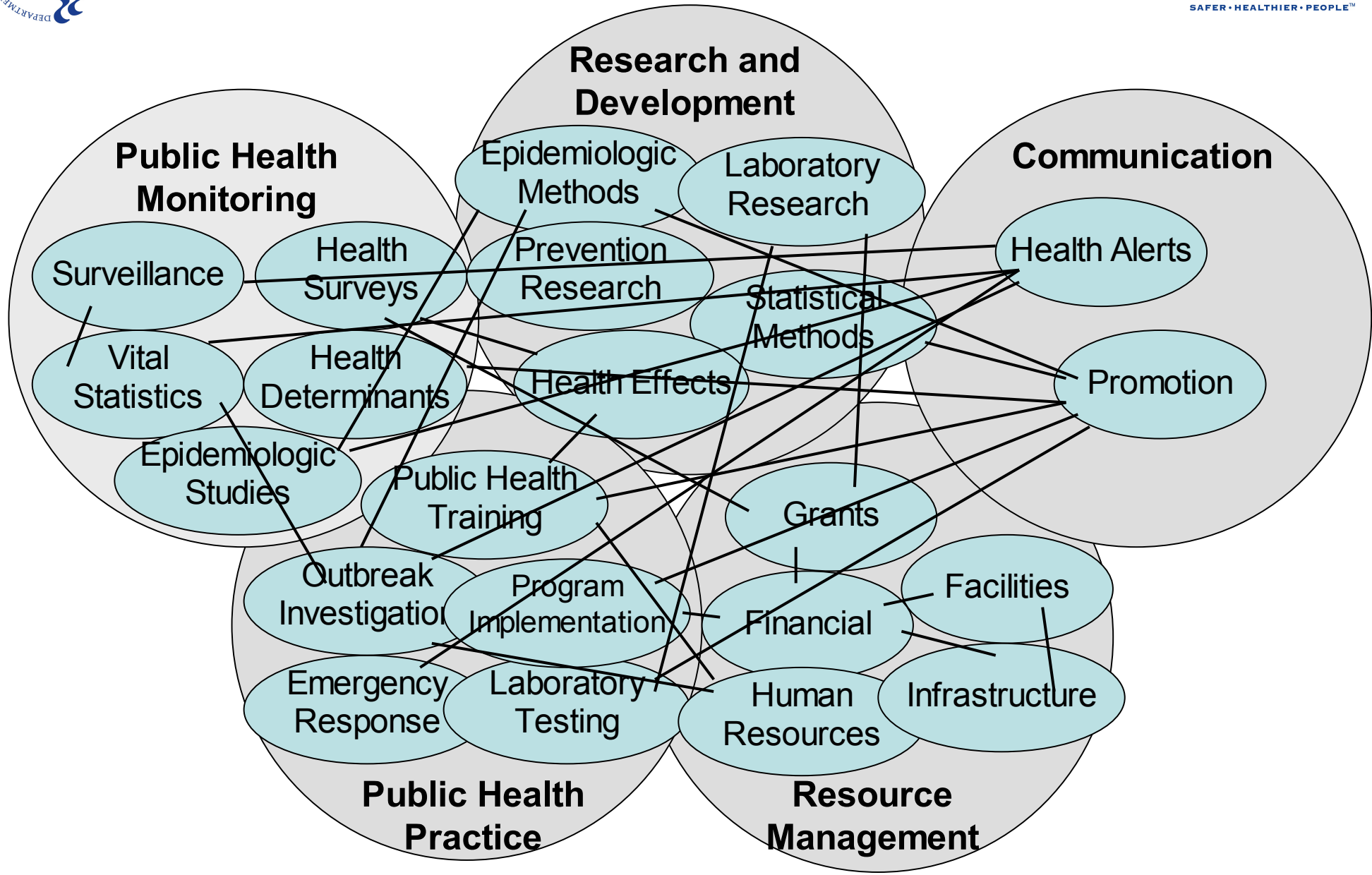
Source: The **Paris guide** to IT architecture, by Jürgen Laartz, Ernst Sonderegger, and Johan Vinckier in **THE McKINSEY QUARTERLY** 2000 NUMBER 3, pp 118 – 127.

City Planning Metaphor

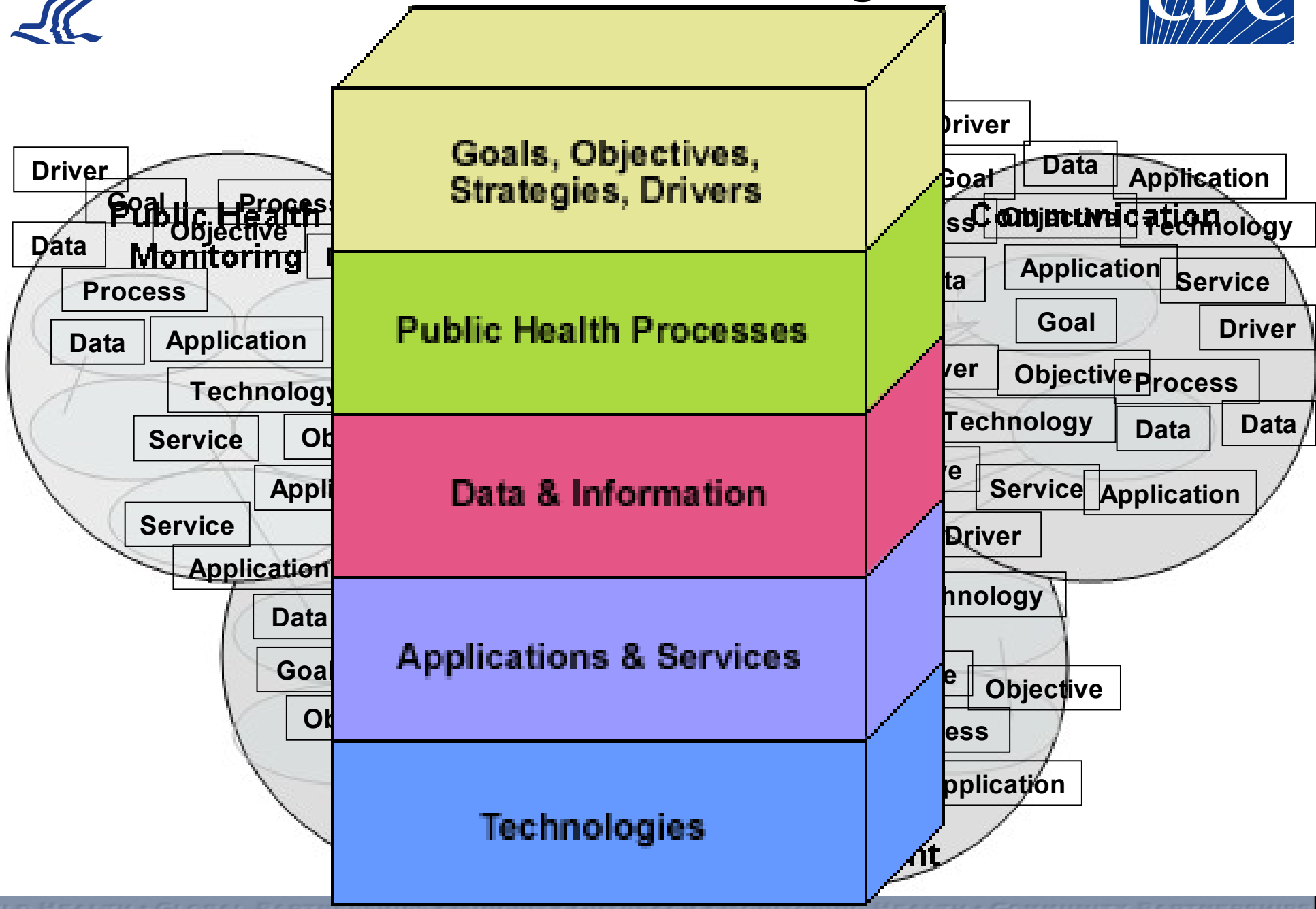
- General planning framework to ensure orderly development.
- Sets boundaries for what may be done and objectives for how development will proceed.
- Establishes rules for given property or property type.
  - Standardization - plumbing sizes, voltages, road width, etc.
  - Certification - authorization of planners and electricians
  - Management - rules and notifications/approvals/permits
- Principles for common services to which a property can or must be connected.
  - Supply of water, electricity, heat, etc.
  - Sewage and refuse systems
  - Telephone, cable, TV, Internet, etc.

Danish Ministry of Science Technology and Innovation, 2003

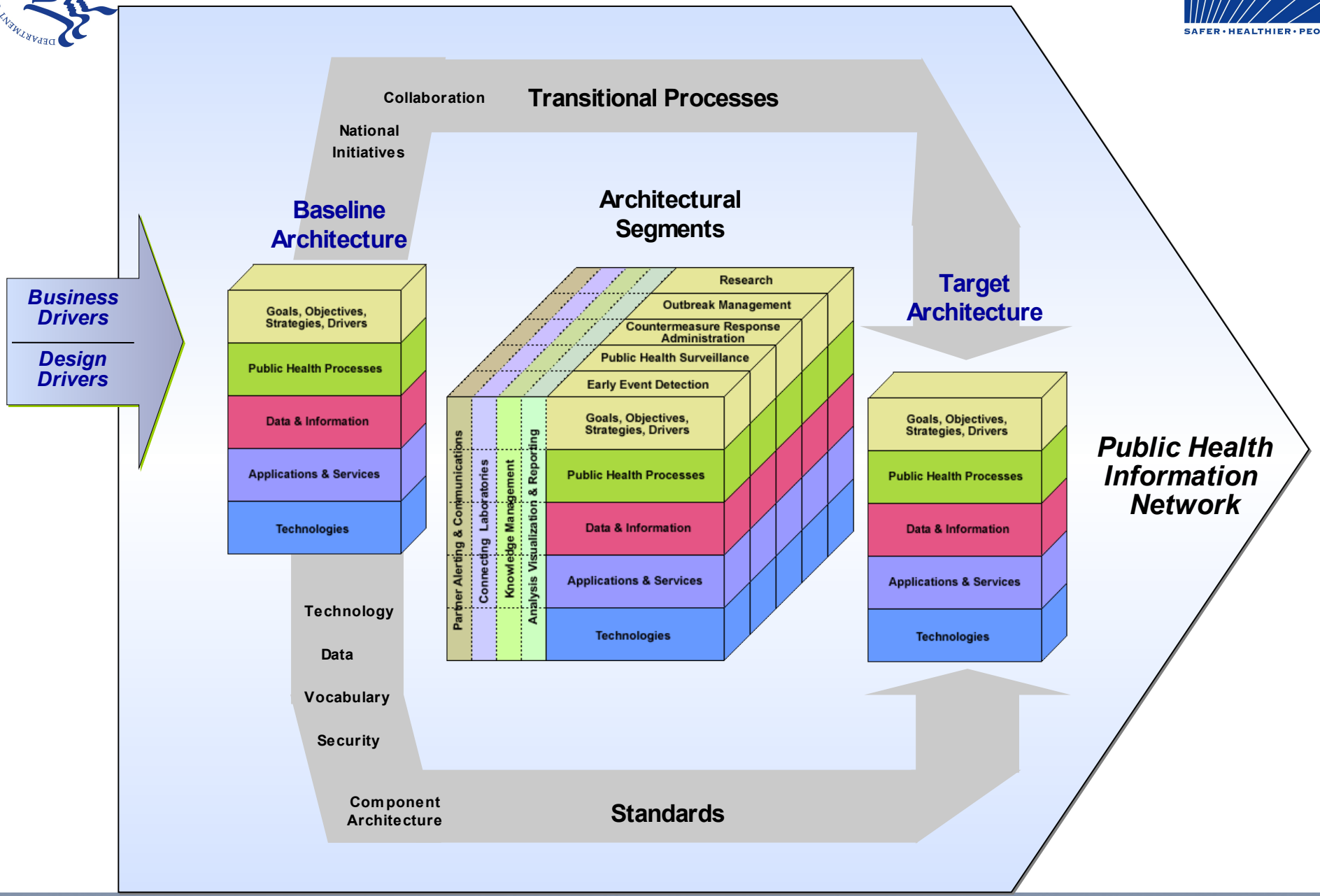
Interconnectivity of Public Health Activities



Architectural Modeling



Architectural Process



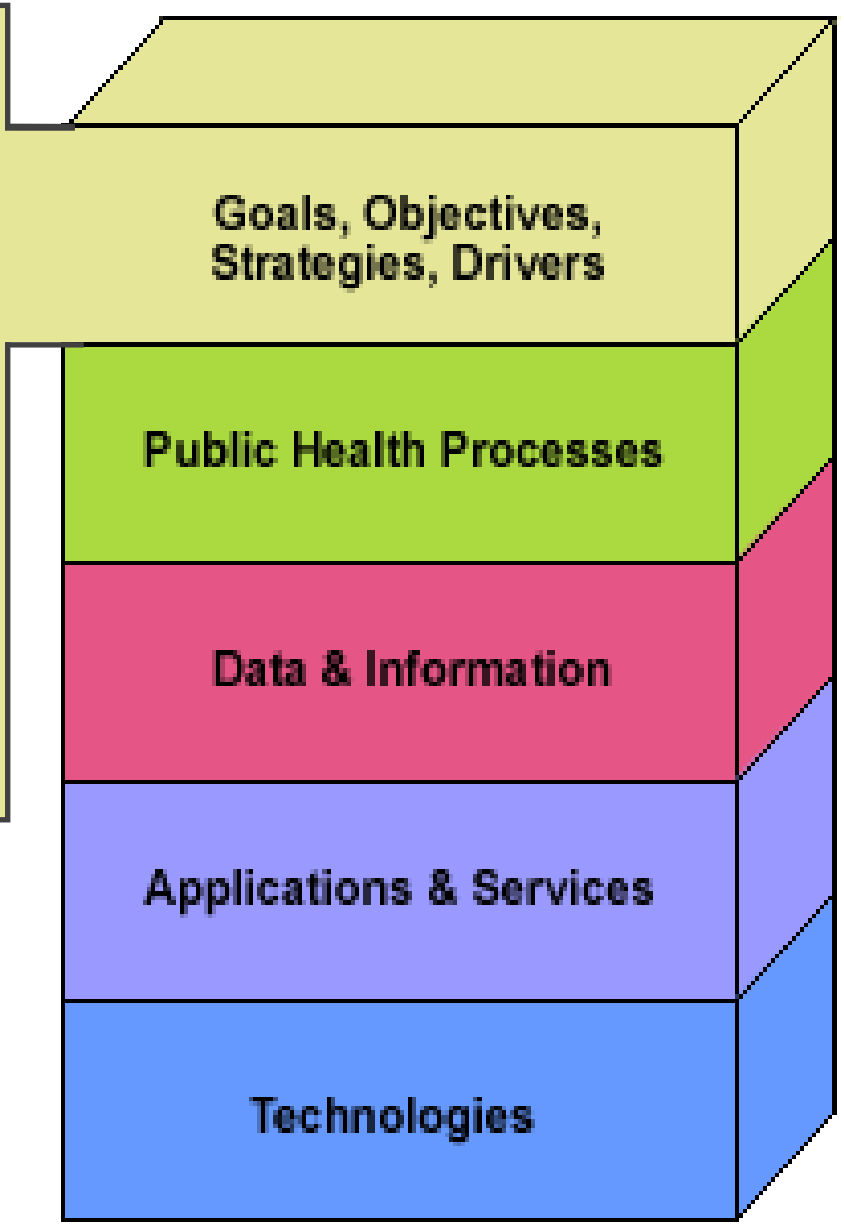
High Level PHIN Goals

Ensure that public health partners work together using an information infrastructure based on national standards.

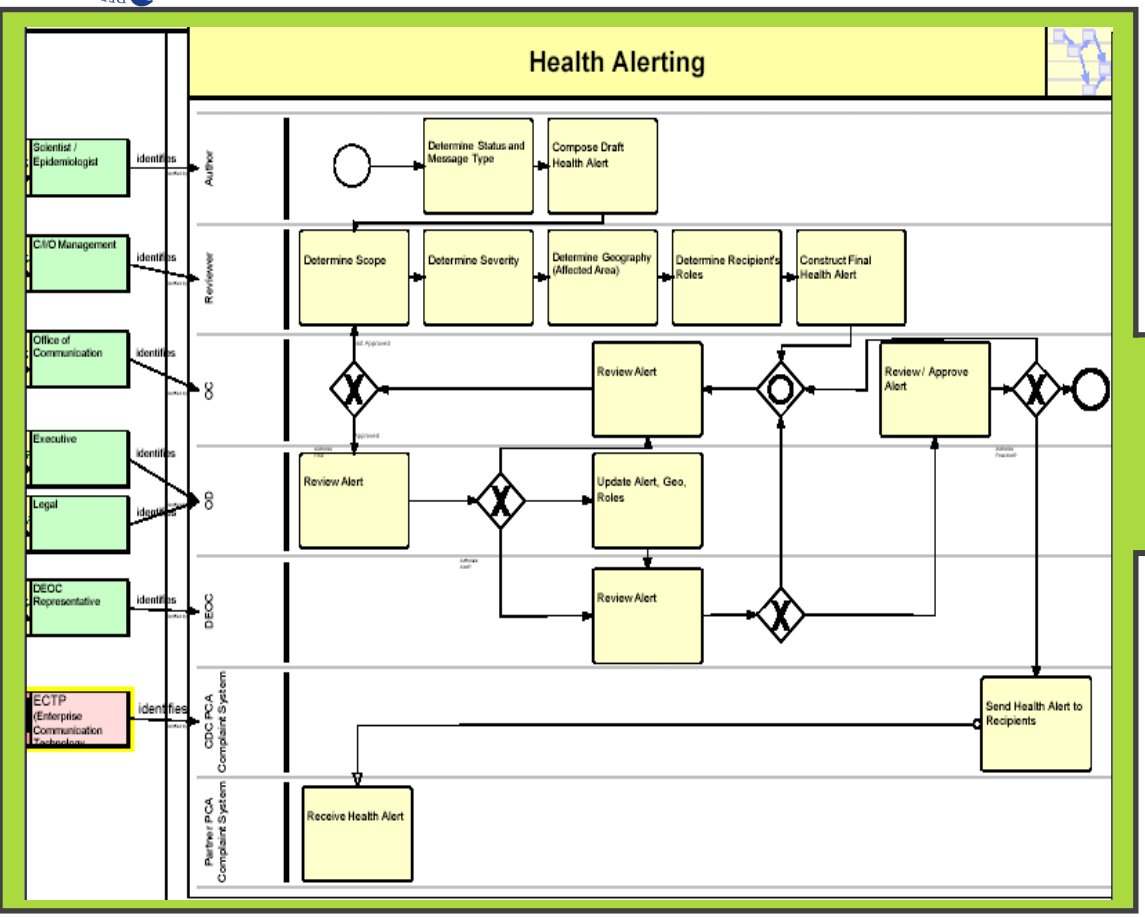
Ensure public health information systems are available and utilized to support routine activities as well as emergency preparedness and response.

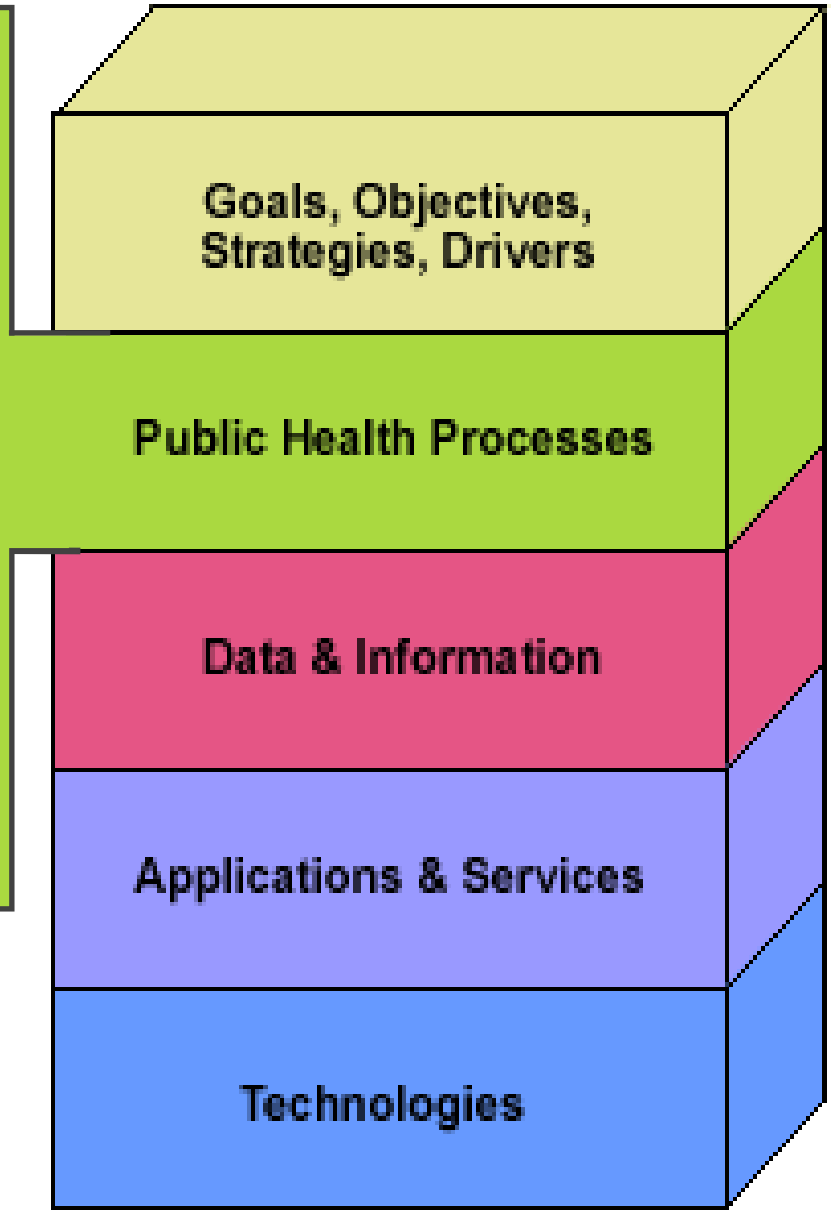
Provide all public health agencies with appropriate and timely information to support informed decision making.

Ensure synergy between PHIN requirements and national initiatives.



High Level PHIN Goals

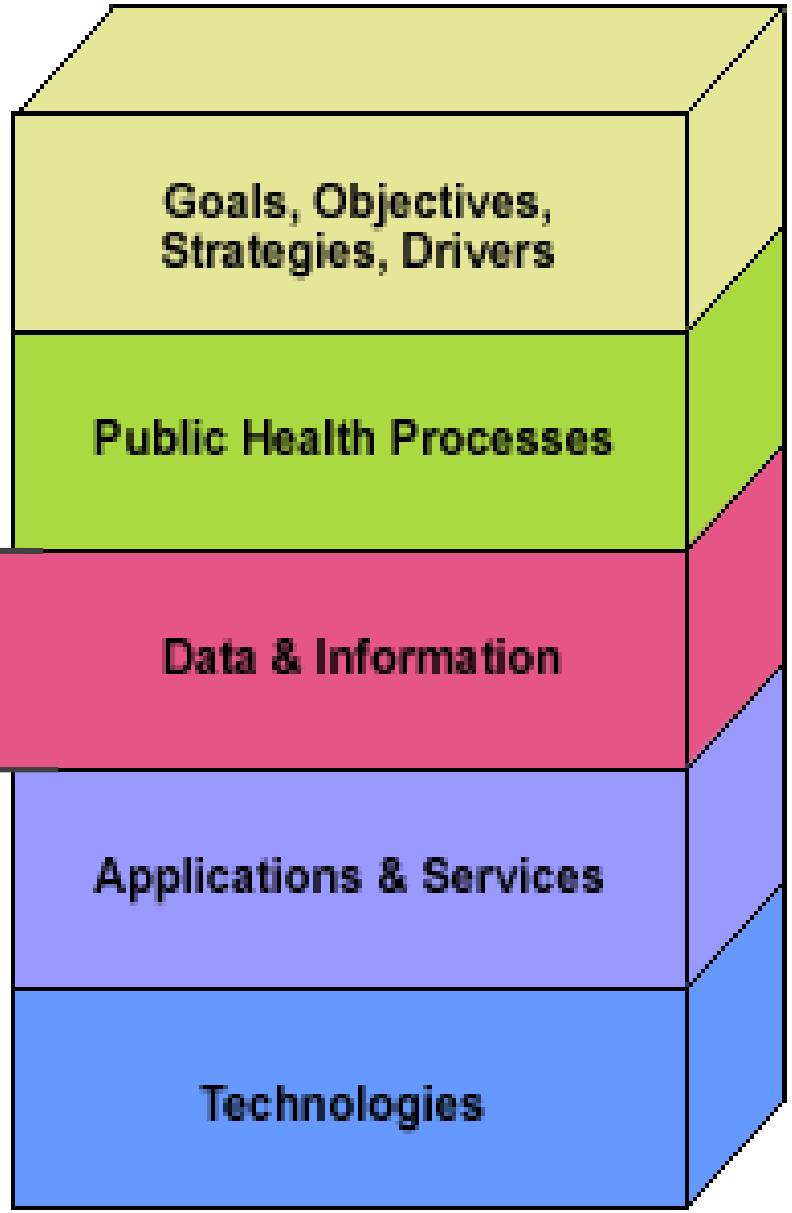




- Public Health Monitoring
- Surveillance

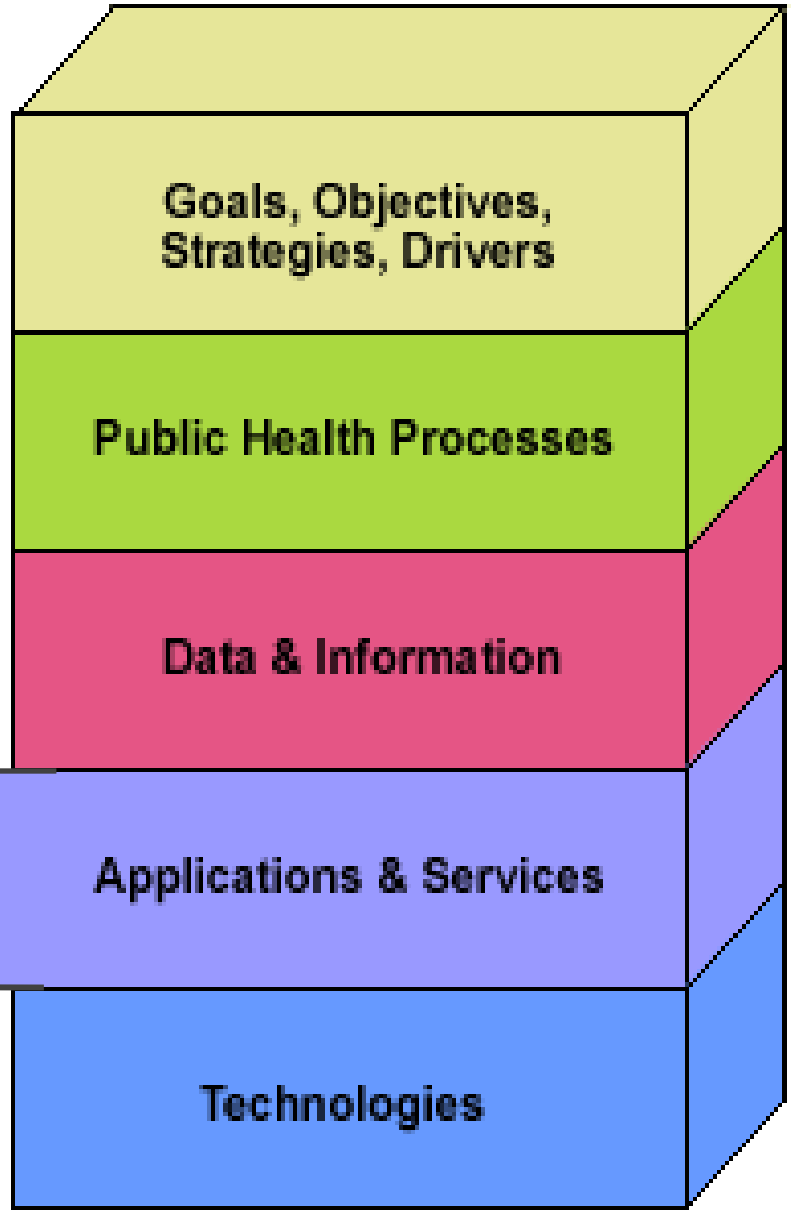
High Level PHIN Goals

- PHIN Logical Data Model
- Common Vocabularies
  - SNOMED
  - LOINC
  - HL7
  - ICD-9, ICD-10
- Messaging Formats
  - HL7 2.3.x, 2.4.x, 2.5.x, HL7 3.0

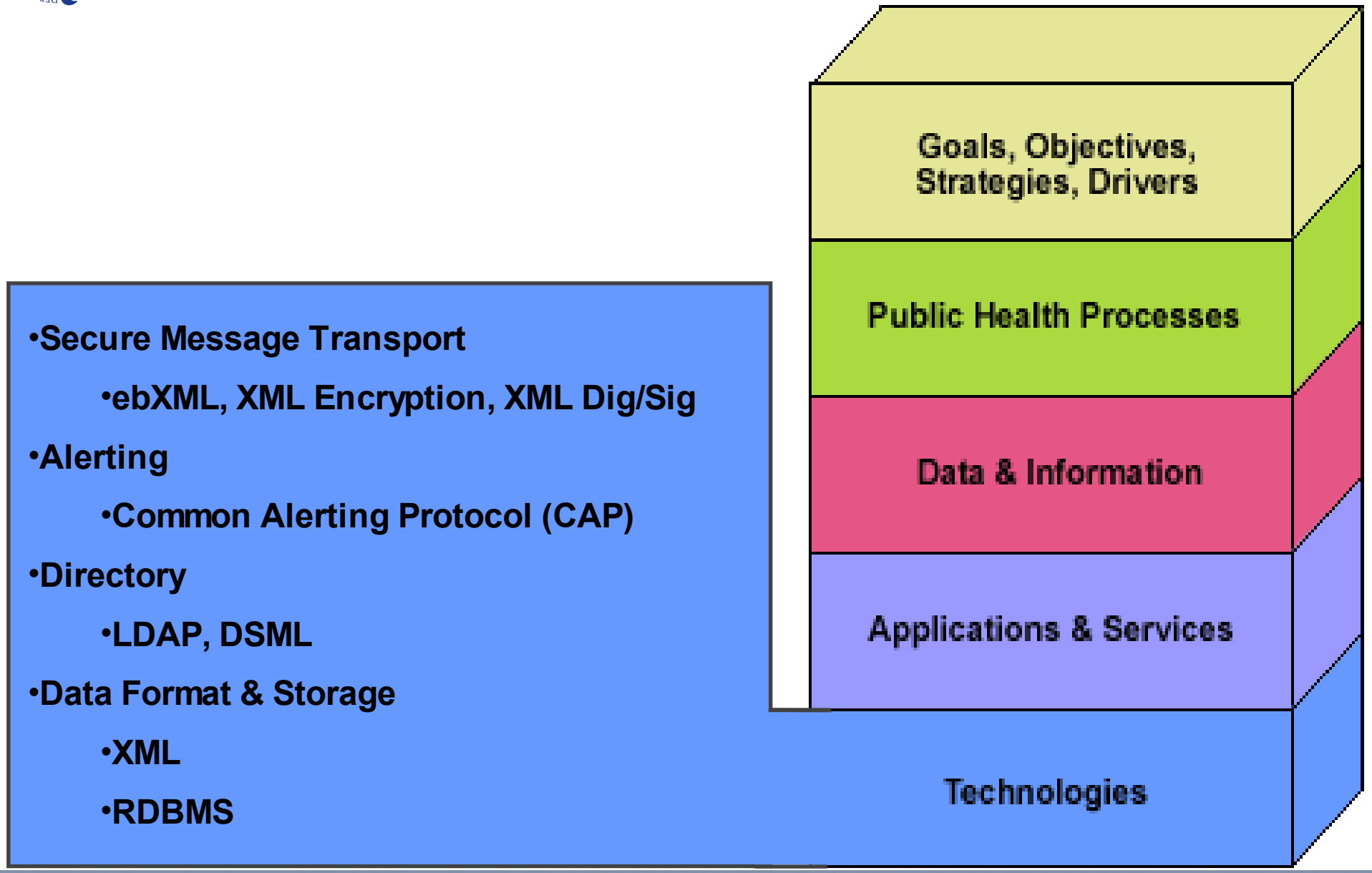


High Level PHIN Goals

- BioSense
- NEDSS
- PHIN MS
- Public Health Directory
- PHIN VS
- LRN Results Messenger
- Countermeasure Response Administration (CRA)
- Outbreak Management System (OMS)

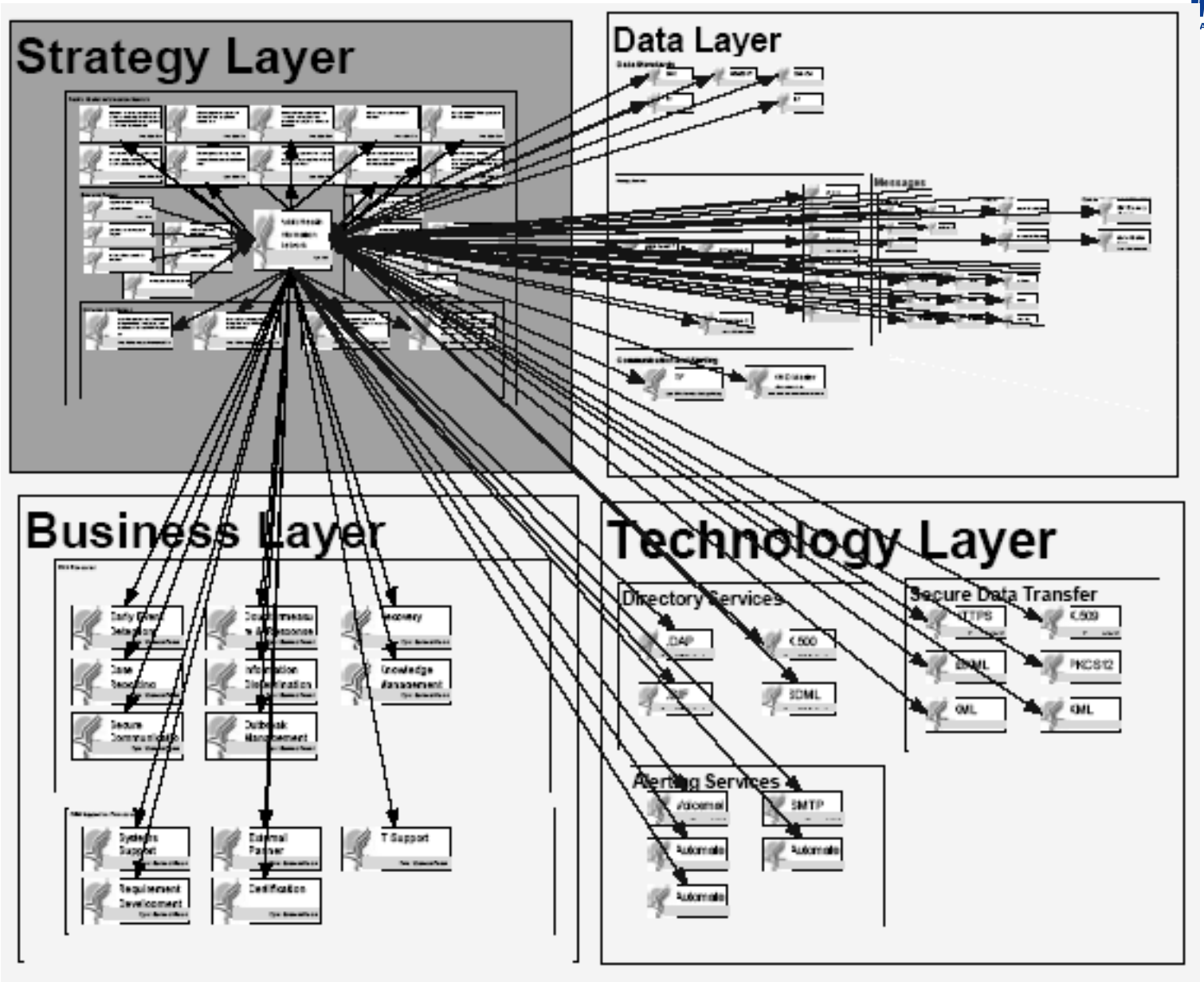


High Level PHIN Goals



- Secure Message Transport
  - ebXML, XML Encryption, XML Dig/Sig
- Alerting
  - Common Alerting Protocol (CAP)
- Directory
  - LDAP, DSML
- Data Format & Storage
  - XML
  - RDBMS

Architectural Relationships



Next Steps

- Managed Evolution of Complex Distributed Systems
- Business Driven Architectures
- Dedicated EPHT Architectural Support
- Continuous Architectural Modeling – Baseline & Target; Transition Strategies (Dependencies, Scheduling, etc.)
- Collaborative Development
  - Collaborative Development Portal
  - Communities of Practice
- Systematic Software Architecture Initiatives
  - Component-Based Service Oriented & Event Driven Systems

NOTE: PHIN Conference September 23, 2006